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# American Fern Journal

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## Notes on American Ferns: X<sup>1</sup>

WILLIAM R. MAXON

BLECHNUM OCCIDENTALE, AN ADDITION TO THE UNITED STATES FLORA.—*Blechnum occidentale* L., an extremely common fern of tropical America at low altitudes, may be reported from the United States for the first time on the basis of a specimen recently received at the National Herbarium (No. 865605), collected near Brooksville, Hernando County, Florida, February 11, 1916, by Mr. J. B. Norton of the Bureau of Plant Industry, U. S. Department of Agriculture. The specimen (No. 437 of Mr. Norton's series) grew with others at the edge of a stream in deciduous woods, in high hammock land. Brooksville is situated in western middle Florida, 40 miles almost due north of Tampa. The region is one in which *Blechnum occidentale* might reasonably be expected to occur naturally, and there is no reason to suppose that it is not native where discovered, notwithstanding that a Plant Introduction Garden of the Bureau of Plant Industry is located not many miles distant.

At the writer's request Mr. Norton has kindly submitted the following notes relating to the discovery of this species:

"When at Brooksville, Florida, in February, 1916, as I was being driven out to the Plant Introduction Garden

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<sup>1</sup> Published by permission of the Secretary of the Smithsonian Institution.

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the first day, I noticed near the road a small stream meandering through the low virgin forest which still occupies some of this region. The stream had steep banks, much like those of a drainage ditch, where it had cut through the hard clay subsoil for about 6 or 8 feet. Growing just about the dividing line between the sandy soil and the clay subsoil were these ferns that I have numbered 436<sup>1</sup> and 437. On February 11th I made a trip back to this stream to get these specimens and was surprised to find two species occupying the same habitat. I did not find either one on the level of the woodland nearby, where *Asplenium platyneuron* was growing abundantly. I saw one other brook of this type in the region, but unfortunately the woodland around it had been cleared away and the ferns that had been there recently had disappeared.

"The woodland where these ferns grew is about 300 feet above sea level and about 50 feet below the crest of the high hammock which runs through this part of Florida. Their plant associates were those normal to the hardwood forest of this region, namely, live-oaks, persimmon, *Crataegus*, *Smilax*, *Tilia*, *Vitis*, *Tillandsia*, *Habenaria*, and *Epidendrum*. While there are introduced plants in this region, they are either weeds or weed-like flowering plants that have escaped from gardens around Brooksville. There is absolutely nothing to suggest that either of these ferns (*Blechnum occidentale* and *Polypodium pectinatum*) has been brought to this region."

The probability that *B. occidentale* would be discovered at some point of the Gulf Coast region had previously been pointed out.<sup>2</sup>

RANGE OF WOODWARDIA SPINULOSA MART. & GAL.—  
This species, which has been known in the United States

<sup>1</sup> No. 436 is *Polypodium pectinatum* L.

<sup>2</sup> Amer. Fern Journ. 4: 16. 1914.

hitherto from Arizona, California, Oregon, and Washington, has been collected in Nevada by Mr. E. A. Goldman, of the Bureau of the Biological Survey, U. S. Department of Agriculture, the specimen (No. 2441) being from Charleston, altitude 4000 feet, November 18, 1914 (National Herbarium, No. 664606). Charleston is in the extreme northeastern part of Nevada, only 10 or 15 miles from the Idaho boundary. The known range is thus widely extended.

The British Columbia range of *Woodwardia spinulosa* apparently rests on two records. The first relates to specimens listed by Macoun<sup>1</sup> as *W. radicans* var. *americana*, from Texada Island, Gulf of Georgia (east of Vancouver Island), collected by Anderson in August, 1897, the record being then a new one for Canada. The second has to do with specimens in cultivation at Kew "from a small island off Vancouver Island," which were described by Wright<sup>2</sup> as a new species, *Woodwardia paradoxa*. Neither material has been seen by the writer, but there can be small doubt that both represent the common *W. spinulosa* of the west coast of the United States. The distinctive characters of this fern in comparison with the Old World *W. radicans* have been pointed out by several American writers, most recently by Underwood<sup>3</sup> in a forceful criticism of certain taxonomic practices abroad.

THE STATUS OF *PELLAEA RAFAELENSIS*.—In a recent number of this JOURNAL<sup>4</sup> Mr. George L. Moxley proposed a new species, *Pellaea rafaelensis*, the type and sole specimen known being of his own collection (No. 214), from Scholl's Canyon, San Rafael Hills, Los Angeles County, California, May 30, 1914. The plant was illustrated and was compared briefly with *P. andro-*

<sup>1</sup> Ottawa Naturalist, **13**: 169. 1899.

<sup>2</sup> Gardn. Chron. III. **41**: 98. 1907.

<sup>3</sup> Torreya, **7**: 73–76. 1907.

<sup>4</sup> **5**: 107, 108, pl. 8. 1915.

*medaeefolia* (Kaulf.) Féé, its supposed nearest ally. From description and illustration the material appeared to the writer as probably no more than a luxuriant form of *P. andromedaeefolia*, and a critical examination of the type, courteously lent by Mr. Moxley, has confirmed this view. The extent of variation within *P. andromedaeefolia* is extremely great, even in a limited series of specimens, the differences seemingly dependent on conditions of moisture supply and insolation. The present specimen is exactly matched by other material in the National Herbarium from neighboring parts of southern California and is connected by numerous intermediate specimens with the commoner, more congested forms having smaller segments.

WASHINGTON, D. C.

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## The Fern Grottoes of Citrus County, Florida

ROLAND M. HARPER

In the extreme southeastern part of Citrus County, Florida, on the border between the lime-sink and Gulf hammock regions,<sup>1</sup> in about latitude  $28^{\circ} 40'$ , are some limestone cliffs, chasms and grottoes, notable for their rare ferns, some of which are tropical species which do not range much farther north, and some are confined to Florida. Before describing the place it will be in order to sketch the history of its exploration by botanists, as far as known.

The first botanist to visit the locality seems to have been A. H. Curtiss, in April, 1881, which was a year or two after the publication of D. C. Eaton's Ferns of North America. Just what clue brought him there is not known; there were no railroads in the neighborhood

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<sup>1</sup> For map showing location of these regions see 3d Ann. Rep. Fla. Geol. Surv., pl. 16.